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NATURALIZED OCCURRENCE OF PRUNUS PADUS IN AMERICA.

Bayard Long.

The only recognition of the Bird Cherry of the Old World, *Prunus Padus*, as an element of our American flora appears to be in Porter's Flora of Pennsylvania, where it is reported from Pittsburg, in Allegheny County, and accredited with a general occurrence, "locally escaped in eastern N. Am."—the general statement seemingly based entirely upon this specific instance. This record rests upon material collected June 30, 1900 by G. A. Link, and distributed from the Carnegie Museum. The label indicates the plant as "spontaneous on South Side hills, 31st Ward, Pittsburg."[1]

Some years ago the fact was discovered that the species had been collected quite a number of times about Philadelphia, and in most cases mistaken for the native *Prunus virginiana*. It was to be assumed with good reason that these collections had been made from plants growing wild, or ones not obviously under cultivation. With the interest arising in this new member-in-prospect of our local flora, the attempt has been made to rediscover as many of these

[1] The interest of Dr. Otto E. Jennings of the Carnegie Museum has been solicited in the hope that he might be able to add some further information on the occurrence of the plant in this region. He writes that he is not familiar personally with *Prunus Padus* and that the South Side hills are not well known ground to him, but he believes that the species cannot be spreading to any extent in the Pittsburg region since it has not been met elsewhere. Besides the Link material, there is in the Carnegie Museum another specimen from the same locality (and probably the same tree) collected by John A. Shafer in 1901. A note written by Dr. Shafer is also preserved in the herbarium: "A number of trees are growing in the main road of Mt. Oliver just beyond the City limits." Mt. Oliver is south of Pittsburg and just beyond the South Hills section. There is no clear indication, however, that these individuals are of spontaneous occurrence.

stations as possible and to obtain field information on the extent of naturalization which the species has undergone. In the course of this investigation many new stations have been discovered and much detailed data gathered on the local distribution of the species. Through the attention directed to it, each year adds its quota of information to our knowledge of the occurrence of the plant, so that there is now sufficient data to show that the species has become naturalized thoroughly in many places in the Philadelphia area—much more so, in fact, than many a shrub or tree that, not infrequently upon very scanty evidence, has long had a place in our flora.

Prunus Padus is a small tree occurring natively in the northern portions of the Old World. Although it is sometimes credited with being common in cultivation in America, there is little evidence that it is in any present demand. Very few nurserymen have it for sale or even catalogue it. It appears to have been rather popular in America years ago, but now it has rather lapsed into the category of "a plant of old gardens."

There are few more attractive woody species to be seen about Philadelphia. By mid-April the leaves are already unfolding and the plant is bright and green, while thickets and woods are still brown or brightened only by the flowers of the Spice Bush. With the first days of May (or the end of April in early seasons) the plant is covered with long racemes of white blossoms. The flowering season, as in so many trees, is quite short, scarcely over a week or ten days, and within a few weeks the fruit develops sufficiently to show the characteristic roughened stone. Late June to early July brings the brief season of ripe fruit.

In some characters this plant closely simulates the native Choke Cherry, *Prunus virginiana*, and in others, the Wild Black Cherry, *P. serotina*. The former does not occur in the immediate vicinity of Philadelphia and has not been found in the area where *P. Padus* is naturalized, but *P. serotina* is a common "weed" tree about Philadelphia and a frequent associate of *P. Padus*. The habit of *P. Padus* is distinctly arborescent and the bark quite dark. In these characters it resembles *P. serotina*. In winter, or in early spring when the leaves are just unfolding, there is frequently considerable difficulty found in distinguishing it from the Wild Black Cherry. The Choke Cherry, however, is characteristically a shrub, rarely attaining tree-like proportions, with bark more inclined to be grayish.

The leaves of *P. Padus* are mostly obovate and very like those of *P. virginiana*, but the margins are not so sharply serrate. They are of course quite different from the thick, oval, blunt-toothed leaves of *P. serotina*. In some strains the flowers and the racemes are rather similar to those of *P. virginiana* and *P. serotina* but the form most commonly met bears very handsome elongated and often drooping racemes of large-petaled blossoms, strikingly different from its near relatives, and in fact more closely resembling those of an *Amelanchier*. The racemes are characteristically more loosely flowered than in either of the other species, and the pedicels are longer. The flowering season is apparently slightly earlier than that of *P. virginiana* and about a week or ten days earlier than in *P. serotina*—as *P. Padus* is passing out of bloom, the first flowers of *P. serotina* are opening. The cherry is small, round, dark reddish-black and shining, with thin, greenish pulp. The stone is roughened with irregularly disposed projections, this character at once differentiating the species from its allies, which have smooth stones. The fruit varies in quality, as might be expected, but one rarely meets any that he cares to sample a second time. The best that may be said of this cherry is that some strains are perhaps less astringent and nauseating than others. The fruit ripens about three weeks earlier than *P. virginiana* and a month before *P. serotina*. Frequently fruit sets plentifully, especially on individuals growing in the open or on the borders of woods and thickets. The birds apparently eat it as greedily as they do all other cherries, and are probably in large measure responsible for the dissemination of the seed. A tree seen earlier in the season and known to be well fruited may often be found almost stripped of cherries on being visited when the fruit is ripe.

The station first known to me lies in Lansdowne, which is in Delaware County just outside the Philadelphia city limits to the westward. More precisely, it is near Lansdowne Avenue and Pennock Terrace, in a rich wooded gully adjacent to Darby Creek. The early years of my botanizing made me acquainted with this plant—long before *Prunus Padus* was a familiar name to me, and even before *P. virginiana* had been encountered. So it is almost superfluous to note my original idea of its identity—and possibly the close affinity of these two species and the absence of the Old World one from our manuals is sufficient excuse. After more than fifteen years the station was recently revisited. If one's recollection that far back can be trusted,

this station for the cherry consisted of comparatively few individuals in 1905. There are now some scores of trees of various ages thoroughly naturalized on the wooded slopes and especially along the streamlet in the alluvial bottom. They appear quite as indigenous to the gully as the associated Spice Bush, Slippery Elm, and other native shrubs and trees characteristic of southeastern Pennsylvania. In spring the alluvium of this gully, however, is carpeted with the Lesser Celandine. The Japanese Knotweed has become well naturalized here, and nearby is an extensive colony of Goutweed. The site of the old Pennock greenhouses is not far away; possibly the origin of some of these plants is to be traced to the Pennock place. Small dwellings are now being built along the slopes and a road has been run diagonally down and across the gully, but the wooded character of the locality is apparently being carefully preserved and the cherry in large measure may remain undisturbed.

More than twenty years ago the late Alexander MacElwee collected the Bird Cherry in the northwestern part of Philadelphia, along Gorgas Lane in Germantown. In 1921 there was an opportunity with Mr. MacElwee's assistance to re-explore this region, which is near the head of Wingohocking Creek. He selected a position along the Philadelphia and Reading Railway just northwest of where Washington Lane Station is now located as probably the spot where he made his collection in 1899. Here, escaped the processes of "improvement," are still remnants of natural woodland, now, however, filled up solidly in many places with the Empress Tree and the Gray Birch (a naturalized species here),[1] as well as with an equally weedy growth of the Wild Black Cherry. Seedlings of the Bird Cherry, and young trees up to six or seven feet high, may be found scattered through the woodlands for at least a quarter-mile. Near a picturesque, ruined old springhouse in these woods is a thirty-foot tree of the Bird Cherry. The large size and the proximity to the springhouse suggest the possibility of its being a relic of cultivation and the "mother tree" of the Bird Cherries in this vicinity.

[1] The discriminating botanist familiar in the field with the local flora of southeastern Pennsylvania and southern New Jersey recognizes that *Betula populifolia*, as a native tree, is almost absent from the lower Piedmont area. It is common on the Coastal Plain but above the fall line reappears as a definitely indigenous and characteristic species only at the foot of the Alleghanies. In this wide intervening stretch of country most of the few occurrences known can be shown to be cases of introduction. It has a strong tendency to become a weed on filled ground or on disturbed, particularly clayey soils.

One of the main routes of exit from Philadelphia into the woods and green fields of the northern part of the city and the adjacent suburbs is 5th Street. On Sundays and fine days in spring there are few of the city ramblers who do not have bunches of violets, or buttercups, or what not. Beyond Fisher Park, near the corner of 5th Street and Green Lane is a Bird Cherry which, when in bloom, rarely escapes the bouquet-makers. In its season it is a mass of flowers and so conspicuous that it constantly attracts attention. It stands on the roadside, rather in the open, and has had opportunity to develop into a handsome, full-branched, symmetrical specimen fifteen feet in height. It has a shrubby habit, with numerous main stems, in consequence, doubtless, of having been cut down close to the ground at some time. Along with nearby scattered pears and apples unquestionably it has arisen spontaneously.

Much of this area is "the old Fox Estate" and is a region of homesteads now long gone to decay and ruin. The origin of the Bird Cherry here seems traceable to these old places. On the corner opposite to the shrubby specimen is a dilapidated house, and in what must have once been the yard are several of the cherries of varying size. One aged specimen is possibly a remnant of the planted shrubbery but the others are small and so disposed in the woods and thickets as to appear spontaneous.

East along Green Lane is another place on the Fox Estate where there must have been a homestead. Two large Horse-chestnuts suggest a gateway at one spot but the house has long disappeared and many acres are overrun by Black Locust and Wild Black Cherry, while the ground is carpeted with Star of Bethlehem. The Empress Tree, the Washington Thorn, and the Norway Maple have become extensively naturalized, and here one may readily pick out the Bird Cherry scattered through the woods. This old place extends eastward to New 2nd Street. Along this old road (with a new name) at the edge of a wild tangle of native species, thorn and Japanese Honeysuckle is a two-stemmed, spreading specimen of the Bird Cherry nearly twenty feet across. It seems very unlikely, despite its size and age, that it should have been planted in this position; it appears to have arisen from natural seeding.

A mile or more beyond the area of the old Fox Estate is another station for the Bird Cherry near the James Fisher place in Montgomery County, to the east of Oak Lane, Philadelphia. For some distance

along the City Line side of this estate, doubtless what was originally a screening hedgerow has become so wild and thickly grown up with trees and shrubs that it is now a deep tangle. There is an abundance of native plants (such as might be met with in any roadside thicket in this region) and common naturalized species like the Crack Willow and the Sweet Cherry, but there are also quantities of the Norway Maple, the Sycamore Maple and the English Ash—species still rare in a naturalized occurrence. Certain of the largest of these individuals no doubt were planted but specimens of all possible sizes from seedlings to mature young trees occur everywhere in the vicinity. Ancient portions of an Osage Orange hedge may still be detected here and there under the trees and indicate that the plants have arisen through natural seeding by birds and wind, there being few more favorable habitats for such naturalizing than a neglected hedgerow. Among this assemblage of species the Bird Cherry occurs in two spots. Near the main entrance gate are three individuals, two of which are ten to twelve feet high and quite broad. In another portion of the hedgerow, about a city block distant, there is a scattered lot of a half-dozen or so specimens ranging from four to six feet in height, the largest of which are beginning to flower.

Another mile distant—to the southeast at Crescentville, a quaint old spot in the limits of Philadelphia—there are two individuals along Tacony Creek immediately above the main road-bridge. They lie at the foot of the wooded slope, growing upon rocky banks almost within reach of the water. One is a rather low, spreading specimen but the other is a slender tree twenty-five or more feet high and when in bloom conspicuous from the nearby bridge. These specimens have all the appearance of native species, as far as is indicated by their habitat, and would likely be taken for such by the unknowing. There are dwellings in the crest of the slope and possibly a certain amount of garden rubbish and yard cleanings has found its way down into the woods. There is also a trail leading in from the road and some dumping has occurred along it, from whence a small colony of Lily of the Valley has established itself. But it seems quite as likely, in the light of later discovered colonies, that the seeds of the cherry may have been carried down by the stream. At my first visit here, a small girl gathering flowers assured me that there were no other trees hereabouts with flowers like these. She incidentally inquired what kind of tree it was and I hazarded "a kind of cherry."

But after holding up a flowering branch at arm's length, smelling it and casting upon it a critical glance, she said, "No, I guess it's locust." That there may be other specimens in this immediate vicinity is evidenced by material collected by Mr. MacElwee in 1899 "opposite the old mill on the island." This is only a short distance below the main road-bridge but a somewhat cursory search in 1918 failed to reveal the species there.

Further up Tacony Creek, on a tributary streamlet near the village of Cheltenham, in Montgomery County, the cherry has again been picked up—a small plant growing in natural woodland.

At Ashbourne, a couple of miles still further up Tacony Creek, the species is again to be seen. On the freshet-swept banks of the creek below the village occurs a well rounded, much-branched tree ten feet high. There are several smaller individuals in adjacent woods and thickets within a quarter-mile.

To the eastward of this general region about Tacony Creek another area for the cherry may be encountered. Going out from the city along Oxford Pike, the Philadelphia botanist will notice beyond Frankford an abundance of the little round-headed trees of the Sour Cherry about the site of a former habitation. This is not a common naturalized species in the vicinity of the city and if he stops here numerous other species will be found spreading from the original plantings or thoroughly naturalized. Here are al nost impenetrable thickets of naturalized Prickly Ash, *Zanthoxylon americanum,* an abundance of Silver Maple, also naturalized, a shrub or two of Silver Bell growing wild—among these the Bird Cherry. This station was brought to notice by the discerning eyes of Mr. R. R. Dreisbach.

If one continues on, turning into the Roosevelt Boulevard, Pennypack Park will be reached in a few miles. In the rich alluvial woods not far down Pennypack Creek there are a half-dozen trees of the Bird Cherry. They are tall, straight, slender specimens ranging from twenty feet to as much as fifty feet in height. The fact that this station occurs in Pennypack Park is not to be misconstrued into a belief that the cherries may have been planted. The park is of recent founding and embraces the natural wooded valley of the creek —the cherries long antedating the park. There is nothing to suggest to the novice that these are foreign plants (so indigenous-like do they appear in these wild woods) except the presence not far away of the common Day Lily—too frequent, however, to be much of an indicator of introduced species.

All the localities above described lie within ten miles or less of the center of Philadelphia. Several other stations more removed have come to notice. Twenty miles northwestward in Pennsylvania a collection has been made near Gwynedd Valley in Montgomery County. Up the Delaware River it has been collected in Burlington County, New Jersey at Edgewater Park and near Bordentown, fifteen and twenty-five miles, respectively, to the northeast. To the southwest of Philadelphia there is material from Ivy Mills in Delaware County, Pennsylvania, fifteen miles distant, and from Mount Cuba in Newcastle County, Delaware, twenty-five miles away.

The material from the vicinity of Gwynedd Valley was collected by Mr. MacElwee, May 4, 1902, at the crossroads village, Franklinville. Exploration with a detailed map from the collector indicating the probable spot failed upon two occasions in 1922 to reveal the cherry but the region is one of such extensive fence-rows, thickets and woods that, among the abundant Wild Black Cherries occurring there, a small tree or two of the Bird Cherry might readily be overlooked. It may be noted in passing, however, that the region is evidently a favorable one for introductions. The Japanese Barberry, *Berberis Thunbergii*, is probably more thoroughly naturalized here than in any other locality about Philadelphia. There is an abundance of the Garden Red Currant in wild thickets near the village. At other spots on roadsides are naturalized Poet's Narcissus and Everlasting Pea.

On the alluvial banks of the Delaware River above Edgewater Park there is a small specimen of the cherry associated with the Ash-leaved Maple, the Red Ash and the White Mulberry (the last abundantly naturalized in the Delaware valley). It is obviously of spontaneous origin, its position on the very edge of the river suggesting the possibility of the seed having been carried by the water. It fruits well, its branches overhanging the river, and some of its seeds might easily be dispersed, in turn, by means of the river.

The Bordentown locality is on a tributary of Black's Creek, in the general vicinity of Dunn's Mills, and about a mile back from the Delaware. On the crest of the wooded slope by the stream there is a tree of the cherry about ten feet high and as broad. It is in a rather dense tangle of woods and tall thickets adjacent to an old farm. Fragments of broken china and crumbling farm implements protruding from the soil, nearby, evidence a former rubbish heap. Another spreading tree of similar size is in rich alluvial woods about a quarter-

mile up the stream. Associated with the cherries is the European Spindle Tree, very extensively naturalized along this stream for some distance.

The collection near Ivy Mills was made by Dr. F. W. Pennell in 1909. Dr. Pennell informs me that a single tree was noted, apparently wild, along the bank of the West Branch of Chester Creek. This locality is a short distance above Chester Heights, a more familiar place-name.

The Mount Cuba record is based upon material collected by Mr. MacElwee, May 6, 1893. Unfortunately the station has not been rediscovered and we have no detailed information on the occurrence.

It may be noted, in summary, that these observations on the naturalized condition exhibited by *Prunus Padus* in the Philadelphia region are based upon what may be considered a good score of stations, embracing not less than a hundred trees, scattered over a distance of more than fifty miles. Furthermore, that collections and field observations extend through a period of thirty years.

Academy of Natural Sciences of Philadelphia.

THE AMERICAN VARIETY OF SCHEUCHZERIA PALUSTRIS.

M. L. Fernald.

Upon comparing the American material of *Scheuchzeria palustris* with the typical European plants it at once becomes apparent that in the size and shape of the fruit there is a pronounced difference between the two. The European plant has the short ovoid follicles only 5–7 mm. long and crowned by the strongly decurrent sessile stigma; but in the American plant the often narrower follicles are 7–10 mm. long and tipped by a definite thick style, forming a slightly curved beak 0.5–1 mm. long. The seeds of the European plant are likewise smaller, 3–4 mm. long, while in the American they are 4–5 mm. in length and black in maturity. Whether the seeds of the European become black I have been unable to make out, neither Micheli[1] nor Buchenau[2] stating the color, although Syme says, "pale olive."[3] Such seeds of the European plant as have been avail-

[1] Micheli in DC. Mon. iii. 96 (1881).
[2] Buchenau in Engler, Pflanzenr. iv. Ab. 14: 15 (1903).
[3] Engl. Bot. ed. Syme, ix. 67 (1873).

able are a pale brown but this is the color of immature seeds of the American. It is, therefore, not wise to lay great emphasis upon the color. Nor do there seem to be any appreciable differences in the rootstocks, foliage and flowers of the two plants; and it is significant that, although having the sessile stigmas of the European, the Japanese plant has follicles as large as in the American. It seems, then, that the North American plant should be called

Scheuchzeria palustris L., var. **americana**, n. var., a forma europaea differt floribus 3–4 mm. longis; folliculis 7–10 mm. longis rostratis, rostro 0.5–1 mm. longo curvato; seminibus anguste ellipsoideis 4–5 mm. longis atris.—Newfoundland to Manitoba and Washington, south to New Jersey, Pennsylvania, Illinois, Iowa and California. The following, selected from many specimens, are characteristic. Newfoundland: wet open bog, Glenwood, July 12 and 13, 1911, *Fernald, Wiegand & Darlington*, no. 4707; shallow pools in bogs, Grand Falls, July 26, 1911, *Fernald, Wiegand, Bartram & Darlington*, no. 4510. Quebec: sphagnum bog, Natashquan, September 4, 1915, *St. John*, no. 90,107; quagmires at 1035 m. (3400 ft.) Table-top Mountain, August 10, 1906, *Fernald & Collins*, no. 332; Napierville, July 10, 1863, *G. G. Kennedy*. Nova Scotia: bog-holes in barrens, mountains west of Ingonish, August 13, 1914, *Nichols*, no. 842; quagmire-margin of Gold Lake, Birchtown Brook, September 8, 1921, *Fernald & Long*, no. 23,164 (type in Gray Herb.); sphagnous wet peaty margin of Harper Lake, September 8, 1921, *Fernald & Long*, no. 23,165. Maine: Bangor bog, Orono, July 27, 1895, *Fernald*, no. 352; open sphagnum bog, Baker bog, Township vi, Range 17, Somerset Co., July 17, 1917, *St. John & Nichols*, no. 2110; bog, South Chesterville, August, 1904, *L. O. Eaton*; boggy intervale, St. Croix Junction, Calais, August 3, 1909, *Fernald*, no. 1600; Great Heath, Great Cranberry Island, August 29, 1892, *Redfield & Rand*; bog, edge of Great Pond, Belgrade, August 31, 1898, *Fernald*, no. 2742; quaking bog by Lily Pond, Limington, August 29, 1916, *Fernald, Long & Norton*, no. 12,419. New Hampshire: bog, Shelburne, August 16, 1884, *Deane*; abundant about Buck Pond, Stewartstown, July 19, 1917, *Fernald & Pease*, no. 16,606; bog north of Cherry Pond, Jefferson, September 12, 1908, *Pease*, no. 11,433; Large Pond, Fall Mt., Walpole, July 12, 1901, *Blanchard*. Vermont: "In udis sphagnosis ad Colchester," *Oakes*; Snake Mt., August 25, 1880, *Faxon*; Mud Pond, alt. 2300 ft., Wallingford, July 7, 1898, *Eggleston & Kent*; bog, Pownal, July 29, 1898, *Churchill*. Massachusetts: Tewksbury, June 23, 1853, *Wm. Boott;* swamp, Natick, June 30, 1885, *Deane*; peat bog, Billings Pond, Sharon, June 27, 1909, *Knowlton*; peat bog, Sheffield, August 27, 1902, *Hoffmann*. Connecticut: sphagnum bog by Lake Congamond, Suffield, June 22, 1915, *Blewitt*, no. 3539; sphagnum bog about Bingham Pond, Salisbury, July 30,

1904, *Bissell.* New York: bog west of Ampersand Lake, July 13, 1899, *Rowlee, Wiegand & Hastings*; Albany, *Torrey*; quaking morass on Hidden Lake, Litchfield, June 27, 1901, *Haberer*, no. 1006; sphagnum bog, Duck Lake, Conquest, July 1, 1916, *McDaniels, Metcalf & Wiegand*, no. 5477; open moor of Junius Peat Bog, Waterloo, June 20, 1914, *Thomas & Wiegand*, no. 1520. New Jersey: bogs, Budd's Lake, Morris Co., June 25, 1869, *C. F. Parker.* Pennsylvania: Grass Lake, Pocono Mt., August 19, 1863, *Traill Green*; kettle hole bog, Pocono Plateau, July 15, 1904, *Harshberger.* Ontario: bogs, Mere Bleue, June 15, 1898, *Macoun*, no. 67,792. Michigan: sphagnum bog, Mud Lake, Cheboygan Co., July 28, 1917, *Ehlers*, no. 568. Wisconsin: peat bogs, Marinette Co., July 6, 1891, *Schuette.* Illinois: Ringwood, 1860, *Vasey.* Minnesota: White Bear Lake, July 17, 1888, *Schuette.* Iowa: Armstrong, August 8, 1884, *Cratty.* Manitoba: between Cumberland House (Sask.) and Hudson Bay, *Richardson.* California: Sierra Co., 1875, *Lemmon*, no. 1037. Washington: swamps at 610–915 m. (2–3000 ft.) alt., Skamania Co., Sept. 2, 1893, *Suksdorf*, no. 1327; White Salmon, 1878, *Suksdorf*; Colville to the Rocky Mts., 1861, *Lyall.*

There are many excellent illustrations of typical *Scheuchzeria palustris* of Europe, for instance, Flora Danica, i. t. 76 (1766); Nees, Gen. Pl. Germ. ii. t. 24 (1843); Reichenb. Ic. Fl. Germ. x. t. 419 (1848); Engl. Bot. ed. Syme, ix. t. 1435 (1873); Thomé, Fl. von Deutschl. i. t. 34A (1886).

Gray Herbarium.

NOTES ON TREES AND SHRUBS OF THE SOUTH-EASTERN UNITED STATES.

W. W. Ashe.

? × **Quercus caput-rivuli**, sp. nov. A tree 6–12 m. high, 1–3 dm. in diameter with somewhat pendulous lower branches. Bark on trunk at the base of larger trees nearly black, deeply furrowed and cross-checked, above gray and nearly smooth. Twigs slender, pubescent with short brown stellate hairs, partly persistent until the second year. Leaves prevailingly broadly obovate, undulate or rarely slightly 3-lobed at the broad apex, cuneate or abruptly narrowed or sometimes even rounded at the base, blades 7–14 cm. long, 5–10 cm. wide, firm, dark green and glabrate above, at first more or less stellate-pubescent beneath, at length glabrate except for tufts in the axils of the 3–5 pairs of prominent lateral veins, which (and usually the midrib as well) divide up near the margins of the blades and consequently are seldom extended as awns; petioles 6–8 mm.

long, pubescent. Nut, maturing the second year, depressed or subglobose, slightly broader than long, 10–12 mm. thick, pubescent, dark brown, about one third covered by the rather deep flat-bottomed cup with thin edge formed of several rows of appressed closely pubescent silvery brown scales. Aments about 4 cm. long, rather loose.

Growing on sandy soil near Crestview, Florida, with many other oaks. The nut is strongly suggestive of that of *Quercus megacarpa* Ashe[1] of the same general region, but the leaves of *megacarpa* are much contracted in the middle, and are glabrous beneath. The foliage resembles that of *Q. arkansana* Sarg.[2] but the petioles are much shorter and the upper pair of lateral veins are less prominent and are rarely extended as awns.

Carya ovalis mollis, var. nov. Having the fruit of the type and with its red petioles and large leaflets, but the leaflets soft-pubescent beneath. Dry crests of ridges, Twin Creeks, Adams County, Ohio.

For several years various forms of the dwarf rose-flowered locusts (*Robinia*) of the southeastern United States have been cultivated. Many of these forms when cultivated failed to set fruit and if the wild plants of these forms fruited it was seldom. A number of years ago Meehan noticed this in the case of *Robinia hispida* L. At one time this absence of fruit was thought to be due to failure to secure cross fertilization on account of the absence of proper insects from plants in cultivation. Subsequently these barren forms were regarded as sterile hybrids. The wide and general distribution of some of these plants, however, seemed to render this view untenable. Later the fact that not infrequently a fruiting form and a barren form were widely associated led to the conclusion that both might be forms of the same species. Following this idea there were included in the description of *R. grandiflora* Ashe[3] two plants which frequently grow together, one producing fruit, the other apparently barren, but connected by a more or less intermediate form. Attempts at cross fertilization and two seasons' further study both of wild and cultivated plants indicate that these forms have no such complementary relation but are better regarded as distinct species. Similarly the form recently described as *R. unakae* Ashe[4] was held to be the fertile component of *R. hispida* and the statement made that *R. hispida* freely produced fruit and that plants had been grown from its seed.

[1] Bul. Charleston Mus. 14, 9 (1918).
[2] Trees and Shrubs 2, 121 (1913).
[3] Journ. Mitchell Sci. Soc. 37, 176 (1922).
[4] Op. cit. 39, 111 (1923).

From present information it appears that a large number of these species do not fruit, or if so only when wild and then seldom. Bean[1] ascribes this to absence of pollen. Large groups of plants, however, if exclusively of vegetative origin, are properly regarded as a single plant so far as cross-fertilization is concerned.

The description of *R. grandiflora* was largely drawn from fruiting specimens collected July, 1900, on Grandfather Mountain, N. C., but it seems desirable to revise the description so as to limit it to this plant which has now been cultivated for two years as well as again studied growing wild at Wiseman's Bluff, Linville Mt. and at the type locality.

Robinia grandiflora Ashe (Journ. Mitchell Sci. Soc. 37: 176. 1922). A shrub .6–1 m. high or in cultivation becoming 1.6 m. high, with peduncle, calyx, rachis and petiole more or less hispid especially on young plants and with vigorous shoots densely hispid; but on old plants the twigs and shoots may be nearly or quite free of setae. Young twigs especially on old plants, peduncles and leaflets on unfolding closely grayish pubescent as well as petioles and rachises. Leaflets 9–15, elliptic or broadly ovate, rounded at the ends, 1.8–3.1 mm. wide, pale beneath when mature. Flowers about 20 mm. long, pale rose or pale purplish-rose with white, 4–8 in a raceme, peduncles pubescent and hispid, on young plants densely hispid, on old ones sparingly so; calyx 8–10 mm. long, the lobes long-acuminate, much inflated in fruit, hispid, on very young plants densely so and more or less pubescent, part of the hairs being sometimes gland-tipped. Leaves bronze on unfolding.

Linville Mountain, N. C., where not uncommon or at Wiseman's Bluff very common and associated with *R. speciosa*. Flowers from a cultivated plant.

Robinia speciosa, sp. nov. (*R. grandiflora* Ashe, in part). A much branched shrub propagating by root-suckers, 1–1.5 m. high or in cultivation becoming 2 m. high; branchlets dull tan, stipular spines wanting. Young shoots covered with short pale brown pubescence often becoming glabrate, vigorous shoots hispid with pale setae. Leaves of 9–13 ovate or elliptic-ovate, abruptly pointed or obtuse leaflets, 22–34 mm. wide, on unfolding deep bronze and covered beneath with pale gray or yellowish-gray pubescence as well as petiole and rachis. Flowers large, 21–24 mm. long, bright rose and pink with white, in 5–8-flowered racemes; calyx broad, 8–10 mm. long, brownish-gray pubescent and sparingly hispidulose, the 4 mm. long lobes abruptly acuminate; peduncles 3.5–6 cm. long, pubescent and usually slightly hispidulose.

[1] Trees and Shrubs Cult. Brit. 2, 410.

Common on Grandmother Mt., Linville Mt., and Pixie Mt., N. C., and plants from each place in cultivation. A plant now in cultivation, which, however, has not yet flowered, seems to be a nearly or quite glabrous form. Several live plants of this have been distributed as *R. grandiflora* and at least a portion of the herbarium specimens in flower distributed under this name belong here.

Robinia pallida, sp. nov. (*R. grandiflora* Ashe, in part). A shrub propagating by root-suckers, 3–6 dm. high, or in cultivation becoming 2 m. high; stems pale brown with few short greenish-brown branchlets at the summit; stipular spines wanting. Shoots at first covered with close light gray pubescence, becoming glabrate; peduncles and often petioles, rachis and vigorous shoots more or less hispid with pale setae. Inflorescence, rachis and lower surface of leaflets until mature covered with pale gray often appressed pubescence. Leaves are of 9–15 ovate or oblong-ovate sharply acute leaflets, 4–5.5 cm. long, green on unfolding, very pale beneath. Flowers large, 21–23 mm. long, pale rose and pale purplish-rose with much white, in 5–9-flowered racemes; calyx broad, 8–10 mm. long, gray, pubescent and sparingly hispidulose, the lobes about 4 mm. long and abruptly acuminate; peduncles 5–6 cm. long.

Slopes of the Blue Ridge, Caldwell county, N. C. Plants in cultivation since 1916 collected on the road from Patterson to Blowing Rock, N. C. In cultivation blooms just after *R. speciosa*. This plant was included in the original description of *R. grandiflora* and some plants of it were distributed under that name.

All three of the above proposed species have quite similar pubescence. As the flowering season is short this similarity in the pubescence has been confusing. *Grandiflora* is quite hispid. *Pallida* and *speciosa* are copiously hispid only on vigorous shoots; neither is known to fruit; *grandiflora* fruits freely. In many respects *pallida* is intermediate between *speciosa* and *grandiflora*. When their extreme forms are compared in cultivated plants their differences are very apparent.

Robinia fertilis, sp. nov. A shrub becoming in cultivation 2 mm. high; petiole, rachis, peduncle, calyx and stout twigs hispid, with more or less loose short pubescence, or much longer on calyx and peduncle, intermixed. Leaves from 22 to 30 cm. long of 15–19, usually 17, oblong-ovate, nearly glabrous leaflets, from 17–25 mm. wide. Peduncle stout, 5.3–8 cm. long, 5–9-flowered; flowers about 22 mm. long; calyx 9–11 mm. long, lobes long-acuminate, pubescent and with some gland-tipped hairs. Fruit 3–5.5 cm. long densely hispid; seed 3–4 mm. long.

In cultivation the flowering season of this showy plant, much like *R. hispida*, is prolonged. It has the same habit as *hispida* and becomes a symmetrical treelike shrub, 1.3 to 2 m. high.

Robinia boyntonii Ashe,[1] as described, is an aggregate though the major part of the description was based upon a single and well known plant. The description of the fruit was drawn from an herbarium specimen which was later recognized as being different from the flowering plant. Groups of *R. boyntonii* examined for several years have not been known to produce fruit. It is probably one of the forms which does not produce fruit.

Robinia longiloba Ashe[2] was described largely from a plant which is now in cultivation, but the description of the fruit was drawn from an herbarium specimen originally included in *R. boyntonii*. More recently living plants which agree in all particulars with this fruiting specimen have been located and are now in cultivation. These plants differ so strikingly from *R. longiloba* that they have been separated from it as *R. pedunculata* Ashe[3] in allusion to the elongated peduncles. In cultivation it fruits freely. *R. longiloba*, as cultivated, or in two groups of wild plants numbering several hundred stems, has not been known to fruit.

Washington, D. C.

PLANT NOTES FROM SQUAM LAKE, NEW HAMPSHIRE.

H. K. Svenson.

Squam Lake lies in the foothills of the White Mountains, and is one of the group of lakes which extends from central New Hampshire to southwestern Maine. Its area is about fifteen square miles, including numerous coves, islands, and little bays. These plant notes refer to a small area at the northwestern corner of the lake, in the town of Holderness, Grafton County, and were obtained during the summer of 1921 in connection with work at Camp Algonquin. Rattlesnake Mountain, a hill rising from the lake to the height of about thirteen hundred feet, is probably the most interesting single locality. Composed of a rapidly disintegrating granitic rock, it is marked by

[1] Op. cit. 14, pt. 2, 51 (1897).
[2] Bul. Charleston Mus. 14, 30 (1918).
[3] Journ. Mitchell Sci. Soc. 39, 111 (1923).

the presence of several plants, usually occurring in limestone regions, such plants as *Clematis verticillaris* and *Arenaria stricta*. It is also characterized by such southern types as *Asplenium Trichomanes*, *Quercus coccinea* and *Pinus rigida*. The vegetation of the Squam range, lying a mile to the westward and composed of schists, is strikingly different. The boundary between Grafton and Carroll Counties runs across the eastern summit of Rattlesnake Mountain, so that plants occurring on the summit may be considered as growing in both counties.

Arenaria stricta Michx. This plant occurs abundantly on the eastern summit of Rattlesnake Mt., undoubtedly the locality "summit of a hill, Holderness, N. H.," where it was collected in 1891 by Dr. R. C. Manning.[1] It has more recently been collected in Bartlett, N. H., by A. S. Pease. So far as the writer knows, these two localities are the only stations in New Hampshire. The Mt. Washington station, as the foregoing reference mentions, was erroneously recorded through a transposition of labels.

Clematis verticillaris DC. The purple clematis occurs on the eastern summit of Rattlesnake Mt. It has also been noted in Moultonborough by A. C. Lownes. Associated with it on Rattlesnake Mt. are *Anychia canadensis*, apparently its northern outpost in New Hampshire, *Arabis viridis* Harger; *Asplenium Trichomanes* and *Selaginella rupestris*. Scattered over the summit are full-grown trees of *Quercus coccinea*, and conspicuous on the southern slopes is *Pinus rigida*. Both of these trees are rare so far to the northward.

Gaultheria procumbens L., forma **elongata**, n. f., floribus et fructibus valde elongatis.—Flowers and fruit conspicuously elongated. This form is striking. I have seen no herbarium material that even approaches it. It grew abundantly over several square rods on the eastern summit of Rattlesnake Mt., in open woods which had been previously burned, and produced an unusual amount of fruit. Type specimens are in the Herbarium of the New England Botanical Club, and in the Herbarium of Camp Algonquin.

Thelypteris hexagonoptera (Michx.) Weatherby. This fern grows vigorously in an opening in maple woods near the base of the mountain, some of the fronds measuring 35 cm. across. A northern locality for this plant.

[1] M. L. Fernald: The Status of Arenaria stricta in New Hampshire. Rhod. **11**: 184–185 (1909).

Nyssa sylvatica Marsh. A swamp containing at least two dozen large trees occurs at the edge of the lake at the foot of Rattlesnake Mountain. A hollow in one of these trees was large enough to contain a family of raccoons. In the Hanover, N. H., list of plants, *Nyssa sylvatica* is quoted on Jesup's authority as growing at Squam Lake. This may well be the place which Jesup had in mind, for at no other place in this region have large trees been seen by the writer. Growing in this swamp are *Woodwardia virginica* and *Sparganium minimum*, the former a southern, and the latter a northern species.

Just to the westward of this tupelo swamp on a sandy beach grows *Hemicarpha micrantha*, a small sedge characteristic of the coastal plain. Specimens in the Gray Herbarium show that this was collected at Squam Lake by C. E. Faxon as early as 1880. This is the northernmost station recorded in New Hampshire. Growing with it are *Cyperus dentatus* and *Panicum Tuckermani* Fernald. At the mouth of the brook which drains the valley between Rattlesnake Mountain and the Squam Range grow *Subularia aquatica*, *Sagittaria graminea*, and *Potamogeton bupleuroides* Fernald, the latter a species which is found most commonly in brackish coastal waters. In a bordering meadow grows *Polygala sanguinea*, a northern station for this plant.

On the eastern slopes of the Squam Range *Conopholis americana*, *Equisetum scirpoides*, and *Lycopodium sabinaefolium* were collected.

All of the foregoing plants were obtained within an area of a little more than one square mile. Specimens of most of these plants have been placed in the Herbarium of the New England Botanical Club.

Union College.

REPORTS ON THE FLORA OF THE BOSTON DISTRICT,—XLI.

LENTIBULARIACEAE.

UTRICULARIA.

U. biflora Lam. Charles River, Dedham (*E. & C. E. Faxon*, Aug. 3, 1880); Charles River below Wellesley (*K. M. Wiegand & M. Heatley*, July 20, 1908).

U. cornuta Michx. Wet sandy soil, often in shallow water; frequent.

U. geminiscapa Benj. (*U. clandestina* Nutt. of Gray's Manual, 7th ed. See Rhodora xxiii. 142, 1921.) Ponds and stagnant water, rare; Tewksbury, Westwood, Stoughton, Holbrook.

U. gibba L. Open peaty places and edges of ponds; occasional, but few reports south of Boston.

U. inflata Walt. Quiet water, frequent.

U. intermedia Hayne. Shallow water in pools, ditches and ponds; frequent, but few reports south of Boston.

U. minor L. Shallow water, rare; Wayland, Natick, Jamaica Plain, Dedham, Holbrook.

U. purpurea Walt. Quiet water, well distributed and frequent. Especially abundant in the millpond at Easton Furnace (in August).

U. resupinata B. D. Greene. Moist sand along shores of ponds, rare; Bradford, Boxford, Tewksbury, Wilmington, Lincoln, Concord, Acton Sherborn. First discovered at Tewksbury by B. D. Greene, and described by him in manuscript. First published in Bigelow Fl. Bost. 3d ed. 10, 1840.

U. vulgaris L., var. **americana** Gray. Stagnant water, common throughout.

OROBANCHACEAE.

CONOPHOLIS.

C. americana (L. f.) Wallr. Dry oak woods, parasitic, Middlesex Fells [Stoneham] and Blue Hill Reservation, very rare.

EPIFAGUS.

E. virginiana (L.) Bart. Parasitic in beech woods, occasional. (See Rhodora xvi. 112, 1914.)

OROBANCHE.

O. uniflora L. Damp woods and roadsides, parasitic, chiefly on roots of large herbs, frequent throughout.

BIGNONIACEAE.

CATALPA.

C. bignonioides Walt. Winthrop (*Anna T. Young*, July 23, 1882); wild in Back Bay vacant lots (*E. F. Williams* et al., Aug. 27, 1910 et seq.).

MARTYNIACEAE.

MARTYNIA.

M. louisiana Mill. Boston (*C. E. Perkins*, 1877). Specimen in herb. N. E. Botanical Club.

PHRYMACEAE.

PHRYMA.

P. Leptostachya L. Moist woods and more open places, rare; at 14 stations, but no reports from Plymouth Co.

PLANTAGINACEAE.

PLANTAGO.

P. ARISTATA Michx. Dry sandy and gravelly soil, common. A rather recent introduction from the central west.

P. CORONOPUS L. Boston dumps (*C. W. Swan*, Sept. 14, 1886). Specimen in herb. N. E. Botanical Club. Native of Europe, northern Africa and western Asia.

P. decipiens Barneoud. Salt marshes and ledges by the sea, all along the coast.

P. LANCEOLATA L. Dry fields and waste places, very common throughout.

P. LANCEOLATA L., var. SPHAEROSTACHYA Mert. & Koch. See RHODORA xxiv. 403–204. 1922. Georgetown, Malden, Chelsea, Newton, Beaver Brook Reservation, Bridgewater.

P. LANCEOLATA L., var. SPHAEROSTACHYA Mert. & Koch, forma ERIOPHORA (Hoffmansegg & Link) Beck von Mann. See RHODORA xxiv. 203–204, 1922. Weed in sunny lawns, Wellesley (*Margaret B. Simmons*, May 15, —); Blue Hill Reservation (*W. H. Manning*, Sept. 3, 1894); Medfield (*N. T. Kidder*, July 20, 1884).

P. major L. Dooryards and moist places, very common throughout.

P. MEDIA L. Lawns and new grassfields, rare; Framingham, Wellesley, W. Roxbury, Milton, Stoughton.

P. Rugelii Dene. Dooryards and moist places, common throughout.

C. H. KNOWLTON, WALTER DEANE } *Committee on Local Flora.*

Selaginella apoda in Maine.—In 1861 George Lincoln Goodale collected in Wells, York Co., the plant which was described in Gray's Manual as *Selaginella apus* (L.) Spring, but which Professor Fernald has shown should be called *S. apoda* (L.) Fernald.[1] In the great Portland fire Dr. Goodale's specimens were lost, and the plant has been unknown in Maine from that time to July 4, 1922. On the latter date I revisited one of my old hunting-grounds at North Berwick, and, in moist gravelly soil beside a spring-fed rill, only a few feet from the Negutaquet River, I noticed among the grass a close carpet of a small delicate plant, whose peculiar shade of green first caught my attention. On picking some of it and observing that it had three rows of leaves, two at right angles to the stalk and the other smaller and appressed, in my ignorance of the hepatics I concluded that it was one of that group. It was so attractive that I collected a number of plants and laid them in a book where they remained unmolested till the spring of 1923. I then undertook to study the hepatics and thought that I would look over my "No. 7197." As soon as I used the compound on it, I knew that I had no hepatic. Taking Gray's Manual, I easily traced it to *Selaginellaceae* but there I was stopped: my plant grew erect, not prostrate; the microsporangia were below the macrosporangia. As usual I appealed to Professor M. L. Fernald to cut the Gordian knot, and his identification replaces *Selaginella apoda* in the flora of Maine.—John C. Parlin, Freedom, Maine.

[1] Rhodora, xvii. 68 (1915).

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